ORDER NO. ARD-7906041C

Service Manual

Portable Cassette

RQ-2720

Portable Cassette Recorder with Tape Speed Control

This is the Service Manual for the following areas.

[D] ..... For All European areas except United Kingdom.

[N] ..... For Asia, Latin America, Middle East and Africa areas.

RQ-2720 MECHANISM SERIES

Specifications

Power requirement:	Battery; 3 V (two UM-3 size dry batteries) Power consumption; 6 W
Motor:	Electronic governor motor
Power output:	350 mW ··· (max.)
Frequency range:	100 — 10,000 Hz
Operation:	Pushbutton one-touch recording with cue, review and auto-stop mechanism
Tape speed:	4.8 cm/s (1-7/8 ips.)
Adjustable tape speed range:	About ±20% at playback, fast forward/rewind and cue/review
Program time:	1 hour with C-60 cassette tape
Track system:	2-track monaural recording and playback
Input:	MIC; sensitivity 0.25 mV/applicable microphone impedance 200 — 600 Ω (recommended microphone WM-2213) DC IN; 3 V
Output:	Monitor; 8 Ω Remote; for start and stop at hand
Speaker:	5 cm (2") PM dynamic speaker
Dimensions:	175 mm (W) × 19.79 mm (H) × 109 mm (D) [6-7/8" (W) × 25/32" (H) × 4-9/32" (D)]
Weight:	415 g (15 oz), without batteries

Specifications are subject to change without notice.

National / Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

LOCATION OF CONTROLS AND COMPONENTS

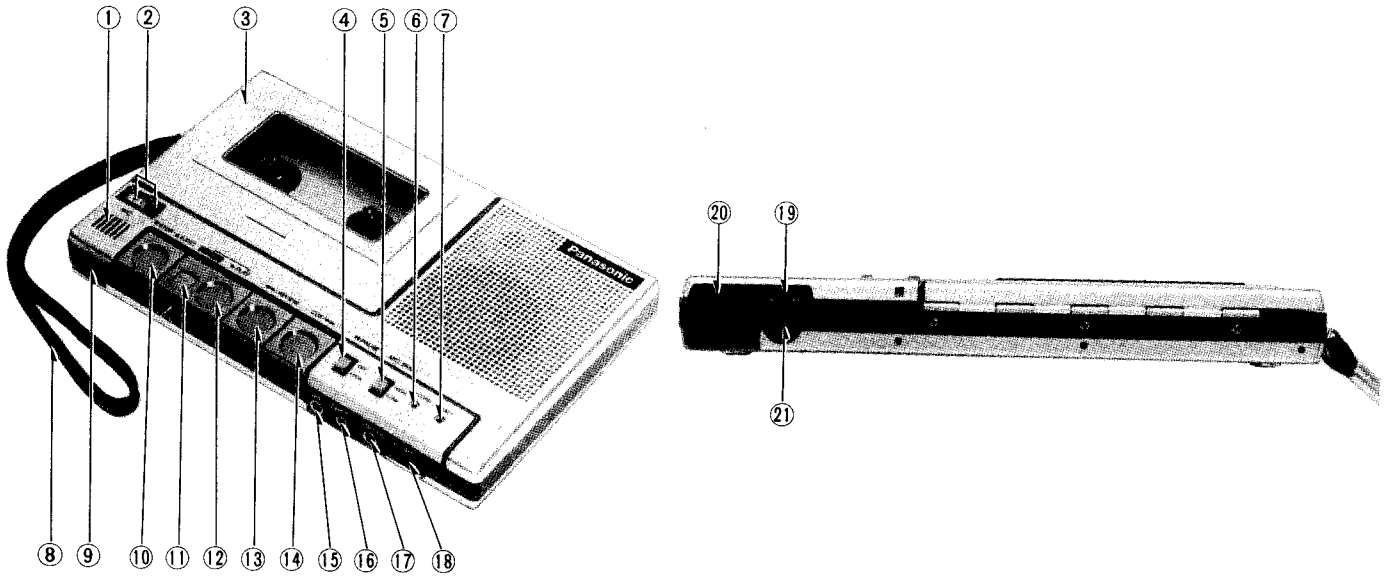


Fig. 1

① Built-in microphone
② Tape counter and reset button
③ Cassette lid
④ Pause switch
⑤ Microphone sensitivity selector (LOW/HIGH)
⑥ Recording indication lamp
⑦ Battery check lamp
⑧ Hand strap
⑨ Playback tape speed control
⑩ Stop/eject button
⑪ Record button
⑫ Playback button
⑬ Review button
⑭ Cue button
⑮ External microphone jack
⑯ Remote control jack
⑰ Monitor jack
⑱ Volume control
⑲ Battery-case-removal knob
⑳ Battery case
㉑ AC adaptor jack (DC IN 3 V)

DISASSEMBLY INSTRUCTIONS

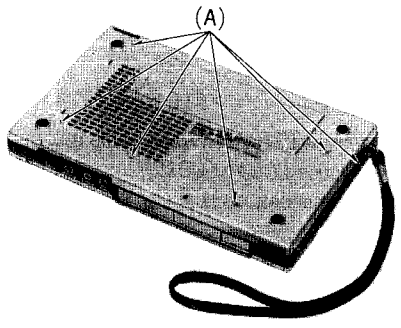


Fig. 2

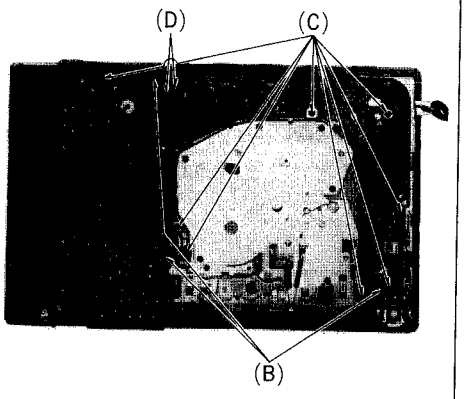


Fig. 3

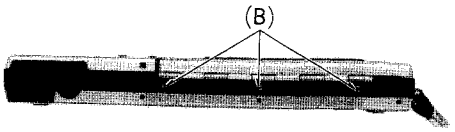


Fig. 4

Procedure	To remove —— .	Remove —— .	Shown in fig. —— .
1	Bottom case	• 6 screws ..... (A)	2
2	Main case assembly	• 6 screws ..... (B)	3, 4
3	Circuit board	• 8 screws ..... (C) • 2 soldered points ..... (D)	3

Mechanical Removal

A. How to remove chassis cover

1. Detach the erase safety lever spring as illustrated (See fig. 5).
2. With the set screws removed, the chassis cover can be detached (See fig. 6).

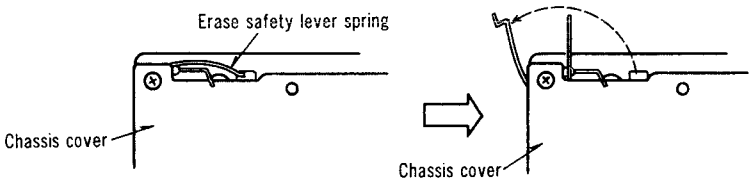


Fig. 5

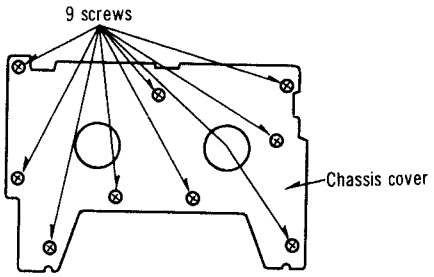


Fig. 6

B. How to remove head base plate

(Note: The base plate can be detached without removing the chassis cover.)

1. Remove three set screws to detach the push button unit (See fig. 7).
2. Remove the set screw and stop ring, then the head base plate can be detached (See fig. 8).

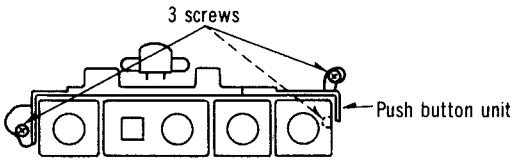


Fig. 7

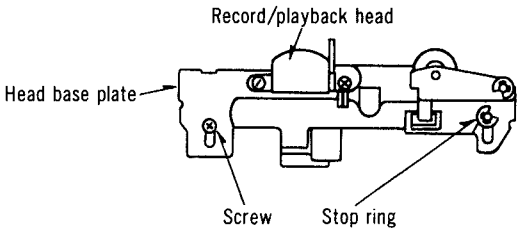


Fig. 8

C. How to remove lower base plate

1. Remove the set screw to detach the flywheel belt cover (See fig. 9).
2. Detach the snap rings of the takeup and supply reel tables (See fig. 10).
3. Remove the set screws of lower base plate (See fig. 11).
4. Press the lock release lever that can be seen from the opening in the lower base plate in the direction of the arrow, and lift the base plate slightly, and then detach the lock release lever spring. Thus the lower base plate can be detached (See fig. 12).

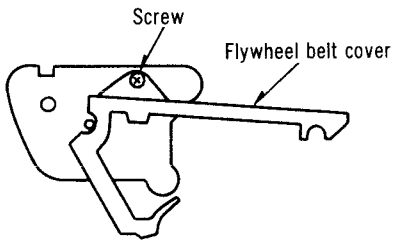


Fig. 9

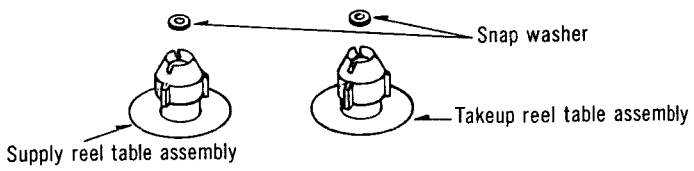


Fig. 10

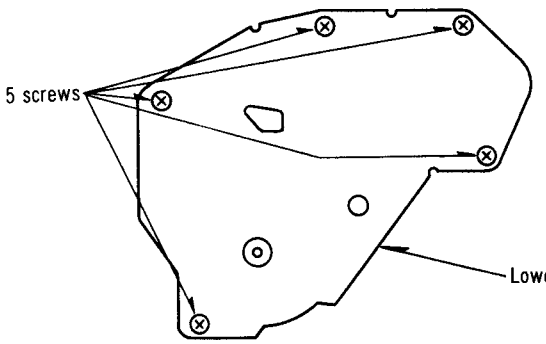


Fig. 11

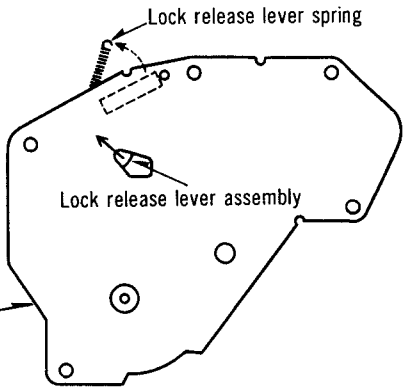


Fig. 12

CHIP REPAIR PROCEDURE

(transistor, diode, resistor and capacitor, etc.)

A. Removal

1. Remove the solder from both ends of a chip using the solder sucker (RP8062).
2. While the soldering iron is attached to both ends of the chip, as illustrated below, remove the chip by turning with tweezers.
   * Make sure that the unit is turned OFF when checking the resistance and polarity of a chip. If technician cannot check individual parts then we won't be able to service unit, and we might have to change complate foil board.

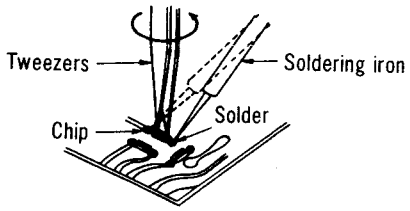


Fig. 13

B. Mounting

Place solder on the foil chip mounting, and solder the chip while applying the soldering iron in the direction of the arrow, as shown in the diagram below.

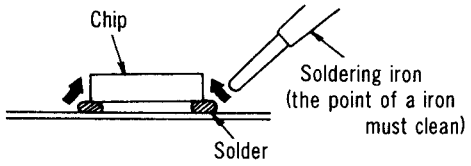


Fig. 14

C. Precautions in mounting the chip

1. Do not heat the chip beyond 3 seconds.
2. Do not rub the electrode.
3. Use tweezers to prevent any damage to the surface.
4. It is recommended that a pencil-type soldering iron be used.
5. Maintain temperature control under 260°C (500°F) when soldering.
   * Chip resistance (of not more than 100Ω) may vary greatly with the direction of mounting; therefore, mount the white side on the pattern side.
6. Do not re-use the tantalum capacitors, hall device or ceramic capacitors after removal (Use new components).
7. Do not subject the components (chips) to excessive stress.

Recommended pencil-type soldering iron:
American beauty model No. V-3800 with their paragon soldering tip CT. No. 604.

D. Precautions in mounting the IC

When replacing the IC2 (M51503L), use the new IC after cutting their pins, as shown in the diagram below.

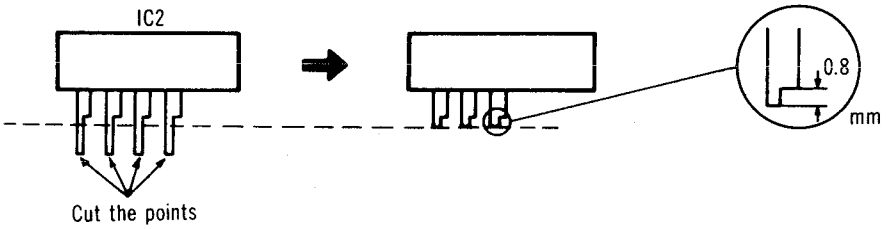


Fig. 15

TECHNICAL EXPLANATION

IC1 M51141P Operation

The M51141P incorporates the functions of (1) a playback preamplifier, (2) record preamplifier, (3) record AGC amplifier and (4) record EQ head amplifier. Line the type with a 3-head format, the preamplifiers are separated for exclusive use in playback and recording, eliminating conventional slide switches and making more variable off-the-tape monitoring possible.
In PLAY mode, +B is applied to the IC terminal 14, making the IC function for playback. At this time, the LED D3 lights green.
In REC/PLAY mode, +B is applied to the IC terminals 14 and 13, making the IC act for recording, and playback function stops. At this time, the LED D2 lights red.

Speaker Monitor Muting During Recording

To prevent howling during recording, it is designed so that monitoring cannot be done from the built-in speaker.

1. When the unit is set to REC mode, Q2 is switched on as bias voltage is added to the base of Q2. As a result, the input of IC2 is earthed so that signal does not flow to the speaker. This is called "speaker monitor muting".
2. With the earphone inserted into J2, the switch in the jack is changed over, and Q2 to turn off causing the base bias of Q2 goes out, and then the monitoring sound can be heard through the earphone. The sound volume can be adjusted by VR3. This is called "variable semi-sound monitor" in record mode.

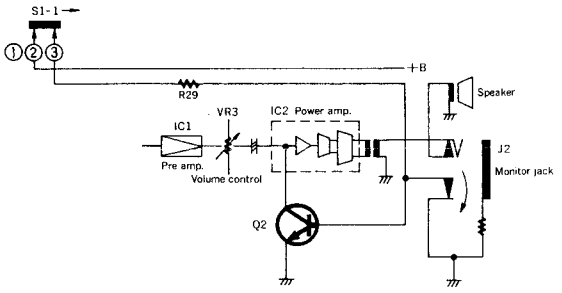


Fig. 16

Tape Speed Control

— Tape speed control circuit —

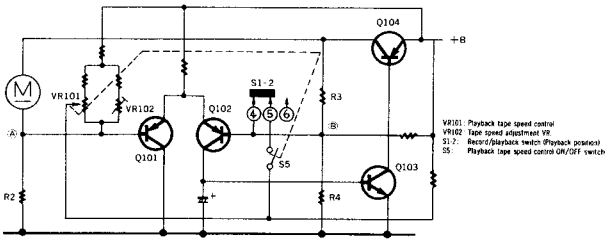


Fig. 17

1. Constant speed control

The motor used for this unit employs a bridge servo (DC electronic governor) system to keep the tape speed constant.
The above diagram can be simplified as shown in fig. 18.

(a) When the motor speed is increased:
The electric potential at Ⓐ drops because the reverse electromotive force increases.
→ potential at Ⓒ drops → potential at Ⓓ drops → potential at Ⓔ drops.
— collector potential at Q104 drops — voltage applied to motor drops — motor speed decreases.

(b) When the motor speed is decreased:
The electric potential at Ⓐ rises because the reverse electromotive force decreases.
Henceforth, the operation is the opposite of (a).
Thus, the motor speed is kept constant.

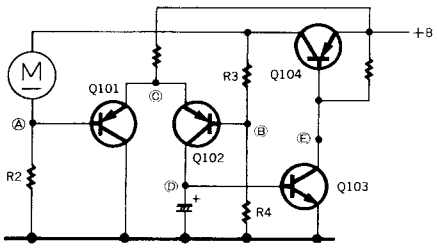


Fig. 18

2. Tape speed control in playback mode

Tape speed control of about ±20% is possible during playback operation. When switch S5 in VR101 (tape speed control volume) is set to ON, the Q102 base bias varies as VR101 changes. This finally causes the voltage applied to the motor to be regulated, thus controlling the tape speed. During record mode, this function does not work because of S1-2 changeover.

Safety Timer Function

In FF or REW mode, if the STOP button is not pressed after the tape is completely reeled up, the mechanical load (motor load) will greatly increase, resulting in excessive consumption of the battery power. In particular, since this unit is designed to operate at low voltage (3 V), excessive loading will greatly affect its performance. The FF or REW mechanism is provided with a safety timer function so that the consumption of battery power can be minimized even if the operational mode is not released.

1. When the unit is set to FF or REW, S6 turns ON ( ) and then the safety timer circuit starts operating.
2. C102 starts to be charged through R122.
3. At that time, each transistor operation is as follows.

Transistor No.	Q105	Q106	Q107	Q108
Condition	OFF	ON	OFF	OFF

— Safety timer circuit —

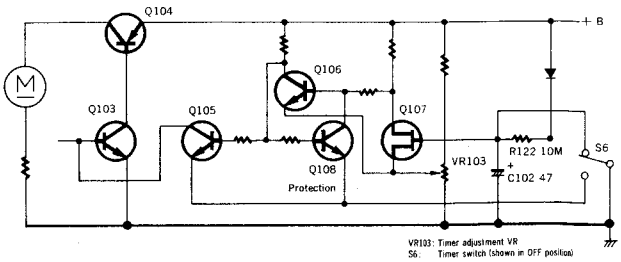


Fig. 19

4. When the voltage charged into C102 reaches a certain level, Q107 is switched ON. (Certain voltage: gate bias to switch Q107 on.)
5. Consequently, each transistor operation changes as shown below.

Transistor No.	Q105	Q106	Q108
Condition	OFF→ON	ON→OFF	OFF→ON

6. Since Q105 collector is connected to Q103 base, Q103 OFF→Q104 OFF→ +B to motor OFF, then the motor stops. (The time required is about 6 min. after start of FF or REW.)
   Thus, the battery power consumption is minimized.

Function of Q108

1. When +B to the motor is cut off by the safety timer, the motor is released from heavy load and therefore the +B voltage level rises.
2. It may sometimes cause Q106 to be switched on again. To prevent such a trouble, the Q106 base bias is cut off by switching Q108 on.

Mechanism Operation

1. Description of each control

Operation	PLAY button	FF or REW button	REC button	Remarks
PLAY	Locked	——	——	FF, REW→Possible to PLAY.
FF	——	Locked	——	REW→Possible to FF.
REW	——	Locked	——	FF→Possible to REW.
CUE	Locked	CUE only with button pressed	——	Locked with both CUE and PLAY buttons pressed.
REVIEW	Locked	REVIEW only with button pressed	——	Locked with both CUE and PLAY buttons pressed.
REC/PLAY	Locked	——	Locked	With CUE or REVIEW buttons pressed, only REC button is unlocked, permitting CUE/REVIEW mode.

2. Auto-Stop

When the tape is completely reeled up in PLAY or REC/PLAY mode, the mechanical Auto-Stop functions.
In FF, REW, CUE and REVIEW modes, the Auto-Stop doesn't work. Then the STOP button must be used.

3. Pause

The PAUSE switch turns ON/OFF power supply to the motor and safety timer circuit. That is, the circuit is electrically stopped by this switch. (Note: That this switch also acts on FF and REW.)

Mechanism Driving Principle

The main gear ① transmits the motor power to the reel tables. The inner race of the gear is toothed, and the gear ② for REC/PLAY and the planet gear ② for FF and REW are built-in into the mechanism. Consequently, the drive section is kept thin without mounting one gear on another.

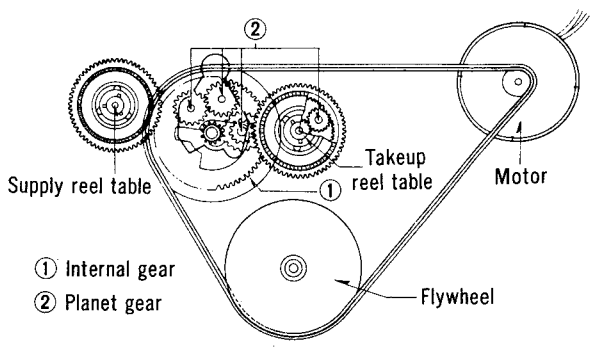
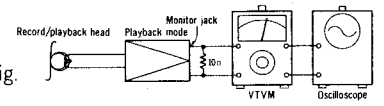
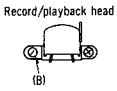
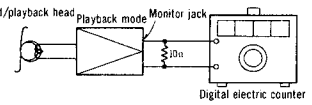
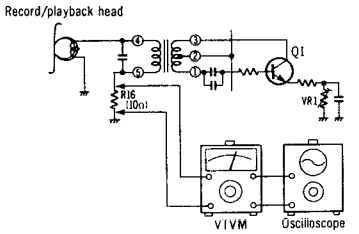
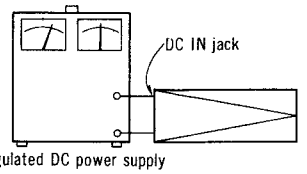
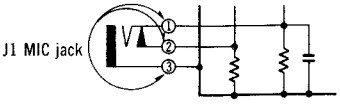
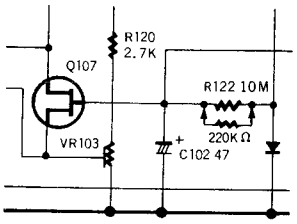


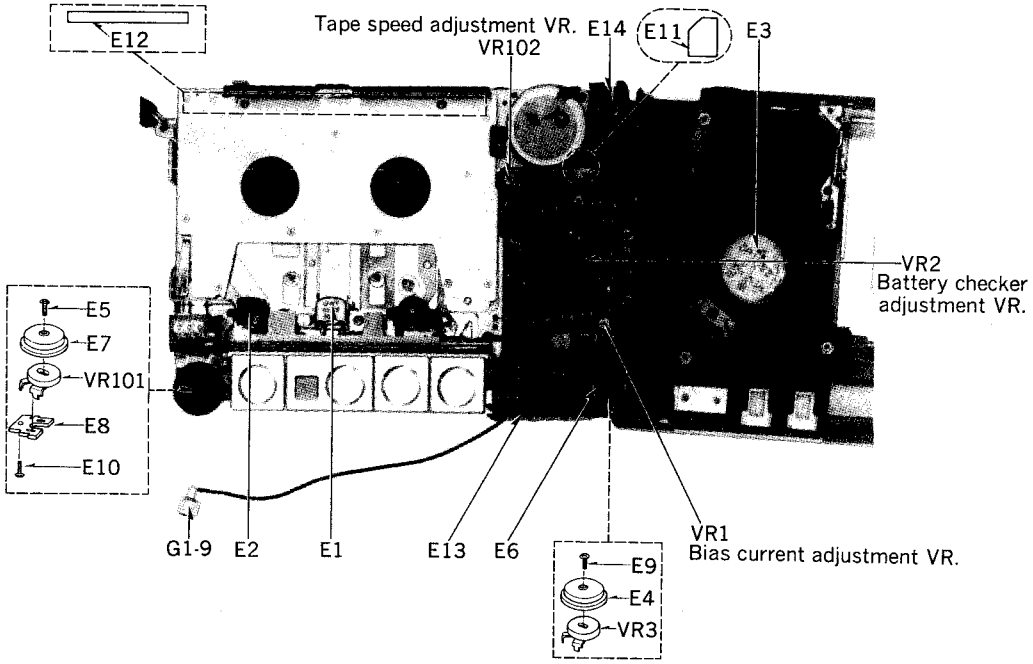
Fig. 20

MEASUREMENT AND ADJUSTMENT METHODS

ITEM	MEASUREMENT & ADJUSTMENT
Head azimuth adjustment Condition: * Playback mode Equipment: * VTVM * Oscilloscope * Test tape (azimuth) ··· QZZCFM	1. Test equipment connection is shown in fig. 21. 2. Playback azimuth tape (QZZCFM 8kHz). 3. Adjust record/playback head angle adjustment screw (B) in fig. 22 so that output level becomes maximum. 4. After adjustment lock head adjustment screw with lacquer.  **Fig. 21**  **Fig. 22**
Tape speed accuracy adjustment Condition: * Playback mode * Tape speed control ··· Center Equipment: * Digital electronic counter or frequency counter * Test tape ··· QZZCWAT	**Tape speed accuracy** 1. Test equipment connection is shown in fig. 23. 2. Playback test tape (QZZCWAT 3,000Hz), and supply playback signal to frequency counter. 3. Measure this frequency. 4. On the basis of 3,000Hz, determine value by following formula: $\text{Tape speed accuracy} = \frac{f - 3{,}000}{3{,}000} \times 100\ (\%)$ where, f = measured valeue 5. Take measurement at middle section of tape. **Standard value: ±2.5%**  **Fig. 23** **Adjustment method** 1. Playback the test tape (middle). 2. Adjust tape speed adjustment VR102 so that frequency becomes 3,000Hz.
Bias current adjustment Condition: * Record mode Equipment: * VTVM * Oscilloscope	1. Test equipment connection is shown in fig. 24. 2. Place UNIT into record mode. 3. Read voltage on VTVM and calculate bias current by following formula: $\text{Bias current (A)} = \frac{\text{Value read on VTVM (V)}}{10\,\Omega}$ **Standard value: 0.5±0.05mA** 4. Adjust VR1.  **Fig. 24**
Battery check circuit adjustment Condition: * Record mode Equipment: * Regulated DC power supply	(Carry out this adjustment if IC1, LED, etc. are replaced.) 1. Set the DC supply voltage to 3V and apply it to the DC IN jack (Shown in fig. 25). 2. Set the tape and put the unit into REC mode. Then the LED lamp (red) lights up. * Connect MIC terminal 1 or 2 to earth terminal 3 (Shown in fig. 26). * Make no connection to the monitor terminal. 3. Lower the supply voltage to check the voltage level at which the lamp turns off. **Standard value: 2.05~2.10V**  **Fig. 25** **If the voltage is not within standard value, adjust in accordance with the following procedure.** 1. Set the supply voltage to 2.07V and add it to DC IN. 2. Set the tape and put the unit into REC mode. * Connect MIC terminal 1 or 2 to earth terminal 3. * Make no connection to the monitor terminal. 3. Regulate VR2 to turn the LED on, make the adjustment and then turn the lamp off. After that, apply 3V to DC IN and then lower the voltage to check that the specification is satisfied.  **Fig. 26**

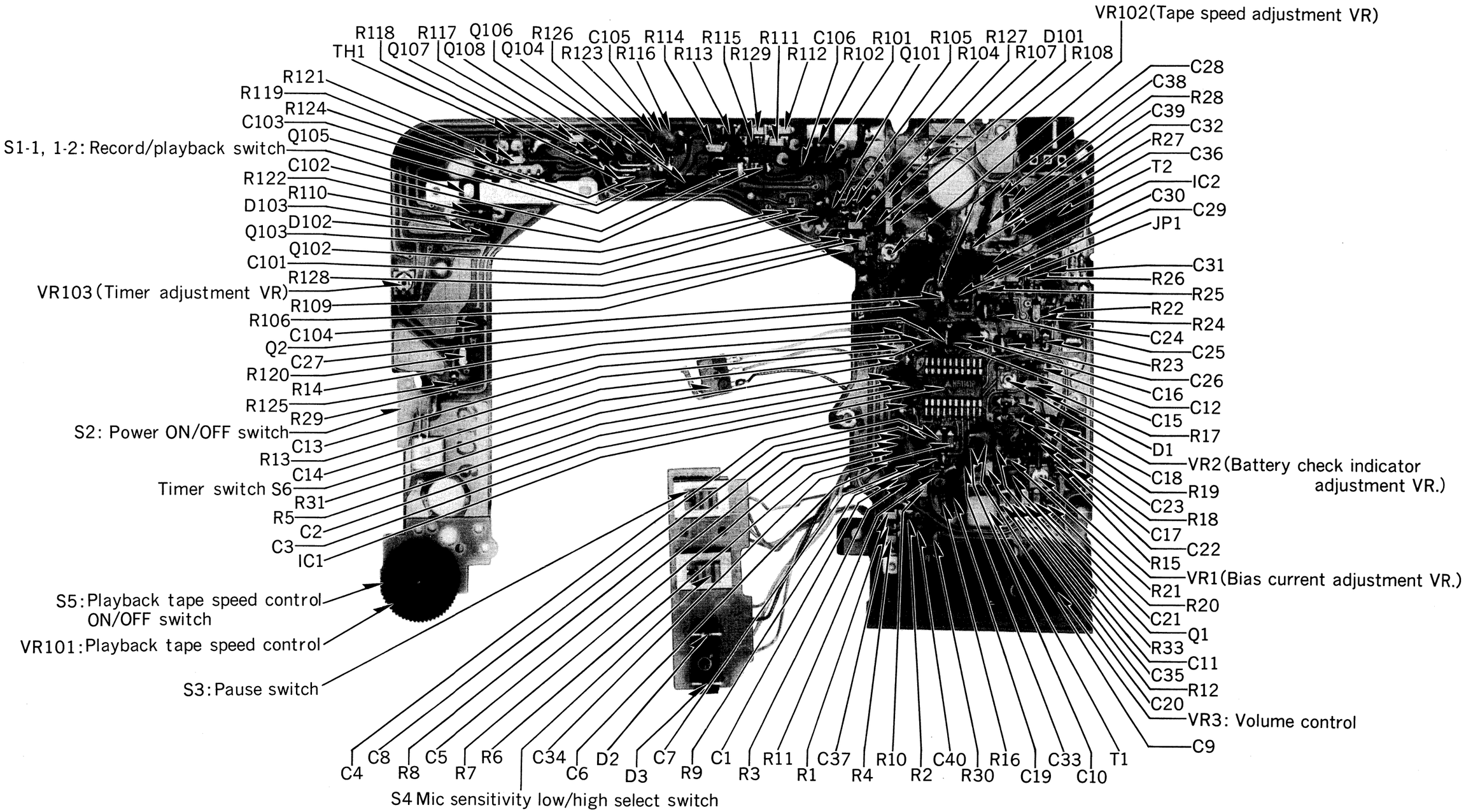
ITEM	MEASUREMENT & ADJUSTMENT
Safety timer circuit adjustment Condition: * Fast forward mode Equipment: * Stop watch * Carbon resistor (220 KΩ)	(Carry out this adjustment if the timer circuit parts are replaced.) **General checking method** 1. Add 3 V to DC IN and put the unit into FF mode (Not using cassette tape). 2. Measure the time required until the motor stops after start of FF operation by means of a stop watch. Standard value: 6±1.5 minutes  Fig. 27 **Early checking method** 1. Connect 220 KΩ (carbon resistor, etc.) to R122 (10 MΩ solid resistor) in parallel with each other (Shown in fig. 27). 2. Add 3 V to DC IN and put the unit into FF mode (Not using cassette tape). 3. Measure the time required until the motor stops after start of FF operation by means of a stop watch. Standard value: 8.5±2 seconds **If the measured time is not as specified, adjust as follows.** 1. Add 3 V to DC IN and put the unit into FF mode. Make parallel connection of 220 KΩ (Shown in fig. 27). 2. If the measured value is larger than the specification, turn VR103 clockwise (Shown in fig. 27). 3. If the measured value is smaller than the specification, turn VR103 counterclockwise (Shown in fig. 27). After the adjustment, remove 220 KΩ (Shown in fig. 27).

ELECTRICAL PARTS LOCATION



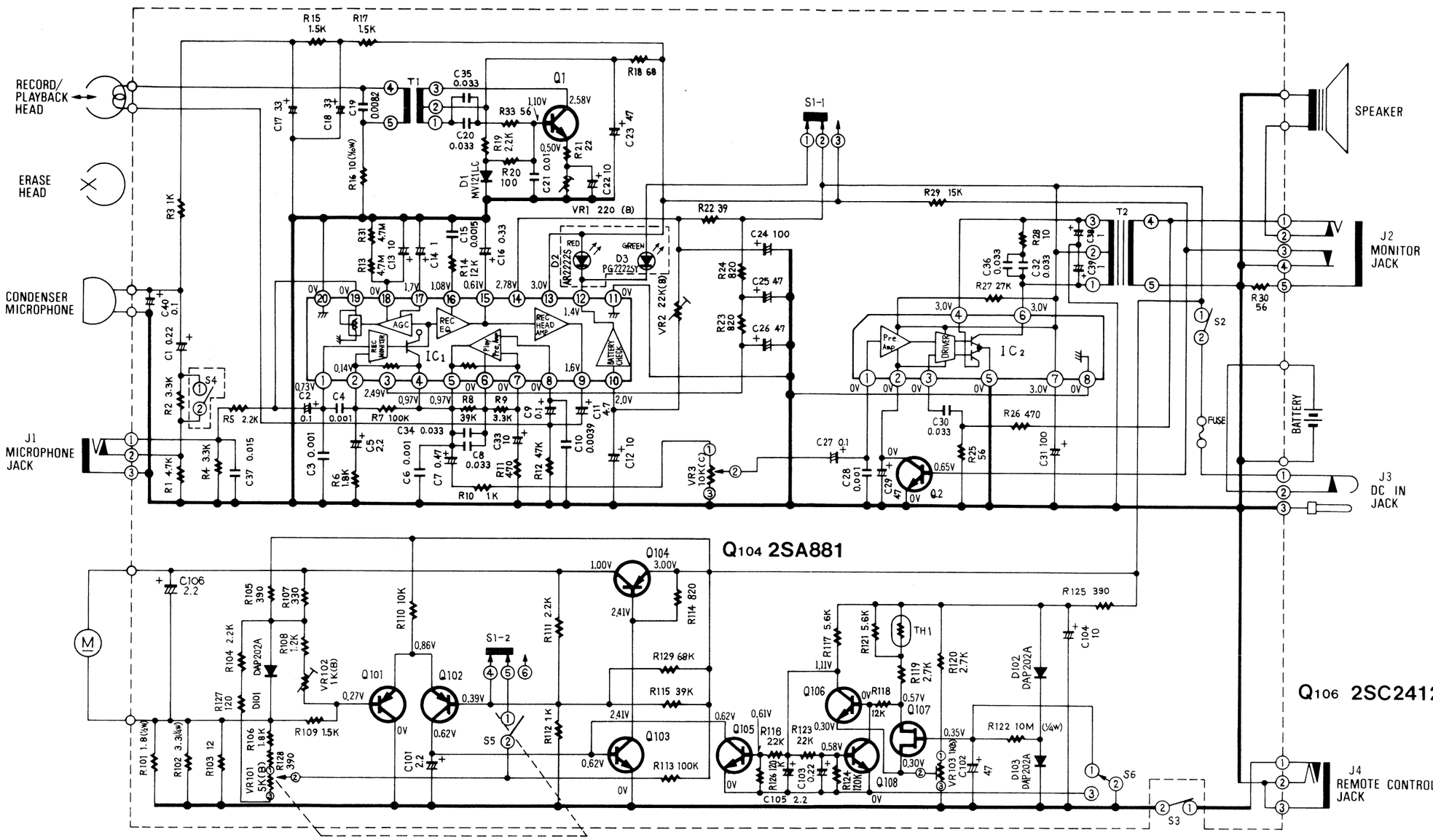
Ref. No.	Part No.	Part Name & Description
	ELECTRICAL PARTS	
E1	QWY0133Y	Record/Playback Head
E2	QWY2134	Erase Head
E3	EAS5P105S	Speaker
E4	QGT1451	Volume Knob
E5	XQN17B28FZ	Screw ⊕1.7×2.8
E6	QKJ0338	LED Spacer
E7	QGT1450	Control Knob
E8	QKJ0339	Control Spacer
E9	XQN16C3FZ	Screw ⊕1.6×3
E10	XQN16C4FZ	Screw ⊕1.6×4
E11	QTW1170	Insulator-A
E12	QTW1176	Insulator-B
E13	QEJ5022C	Jack Board (MIC, REMOTE, MONITOR)
E14	QJA0164H	DC IN Jack

PARTS LOCATION ON CIRCUIT BOARD



SCHEMATIC DIAGRAM

IC1 M51141P Q1 2SC2412R Q2 2SC2412 IC2 M51503L



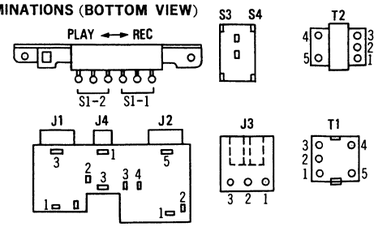
NOTE: RESISTORS
ERD ··· Carbon
ERG ··· Metal-oxide
ERO ··· Metal-film
ERX ··· Metal-film
ERQ ··· Fuse type metallic
ERC ··· Solid
ERF ··· Cement

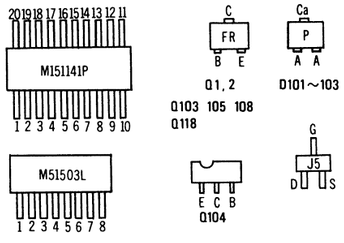
CAPACITORS
ECG□ ····· Ceramic
ECK□ ····· Ceramic
ECC□ ····· Ceramic
ECF□ ····· Ceramic
ECQM ····· Polyster
ECQE ····· Polyster
ECQF ····· Polypropylene
ECE□ ····· Electrolytic
ECE□N ··· Non polar electrolytic
ECQS ····· Polystyrene
ECS□ ····· Tantalum

Ref. No.	Part No.
RESISTORS	
R1	RRD18XJ472
R2	RRD18XJ332
R3	RRD18XJ102
R4	RRD18XJ332
R5	RRD18XJ222
R6	RRD18XJ182
R7	RRD18XJ104
R8	RRD18XJ393
R9	RRD18XJ332
R10	RRD18XJ102
R11	RRD18XJ471
R12	RRD18XJ473
R13	RRD18XJ475
R14	RRD18XJ123
R15	RRD18XJ152
R16	ERD10TJ100
R17	RRD18XJ152
R18	RRD18XJ680
R19	RRD18XJ222
R20	RRD18XJ101
R21	RRD18XK220
R22	RRD18XK390
R23, 24	RRD18XJ821
R25	RRD18XJ560
R26	RRD18XJ471
R27	RRD18XJ273
R28	RRD18XK100
R29	RRD18XJ153
R30	RRD18XJ560
R31	RRD18XJ475
R33	RRD18XJ560
R101	ERX12ANJ1R8
R102	ERD25TJ3R3
R103	RRD18XK120
R104	RRD18XK222
R105	RRD18XK391
R106	RRD18XK182
R107	RRD18XK331
R108	RRD18XK122
R109	RRD18XJ152
R110	RRD18XJ103
R111	RRD18XJ222
R112	RRD18XJ102
R113	RRD18XJ104
R114	RRD18XJ821
R115	RRD18XJ393
R116	RRD18XJ223
R117	RRD18XJ562
R118	RRD18XJ123
R119, 120	RRD18XJ272
R121	RRD18XJ562
R122	ERD25TJ106
R123	RRD18XJ223
R124	RRD18XJ124
R125	RRD18XJ391
R126	RRD18XJ124
R127	RRD18XJ121
R128	RRD18XJ391
R129	RRD18XJ683
VARIABLE RESISTORS	
VR1	QVM42TB221
VR2	QVM42TB222
VR3	EVL4AAT12C14
VR101	EVL5ABT12B53
VR102	QVM42TB102
VR103	QVM43TB102

Ref. No.	Part No.
CAPACITORS	
C1	ECSE1CC474
C2	ECSE1CC104
C3, 4	QCUX1H102MCL
C5	ECSE0JC225
C6	QCUX1H102MCL
C7	ECSE1CC474
C8	QCUX1E333MRL
C9	ECSE1CC104
C10	QCUX1H392MRL
C11	ECSE0JC475
C12, 13	ECSE0JC106
C14	ECSE1CC105
C15	QCUX1H152MCL
C16	ECSE1CC334
C17, 18	ECSE0JC336
C19	ECFTD822KVY
C20	QCUX1E333MRL
C21	QCUX1H103MRL
C22	ECSE0JC106
C23	ECSE0JC476
C24	ECSE0JC107
C25, 26	ECSE0JC476
C27	ECSE1CC104
C28	QCUX1H102MCL
C29	ECSE0JC476
C30	QCUX1E333MRL
C31	ECSE0JC107
C32	QCUX1E333MRL
C33	ECSE0JC106
C34, 35, 36	QCUX1E333MRL
C37	QCUX1H153MRL
C38, 39	ECSE1CC105
C40	ECSE1CC104
C101	ECSF0JC225
C102	ECSE0JC476
C103	ECSE1CC224
C104	ECSE0JC106
C105	ECSE0JC225
C106	ECSE0JC475
TRANSISTORS	
Q1, 2	2SC2412R
Q101, 102	2SA1037R
Q103	2SC2412R
Q104	2SA881CR
Q105, 106	2SC2412R
Q107	2SK67J5
Q108	2SC2412R
INTEGRATED CIRCUITS	
IC1	M51141P
IC2	M51503L
DIODES	
D1	MV121LC
D2	AR2222S
D3	PG2222SY
D101, 102, 103	DAP202A
THERMISTOR	
TH1	QRTD0F152U

TERMINATIONS (BOTTOM VIEW)





NOTE:

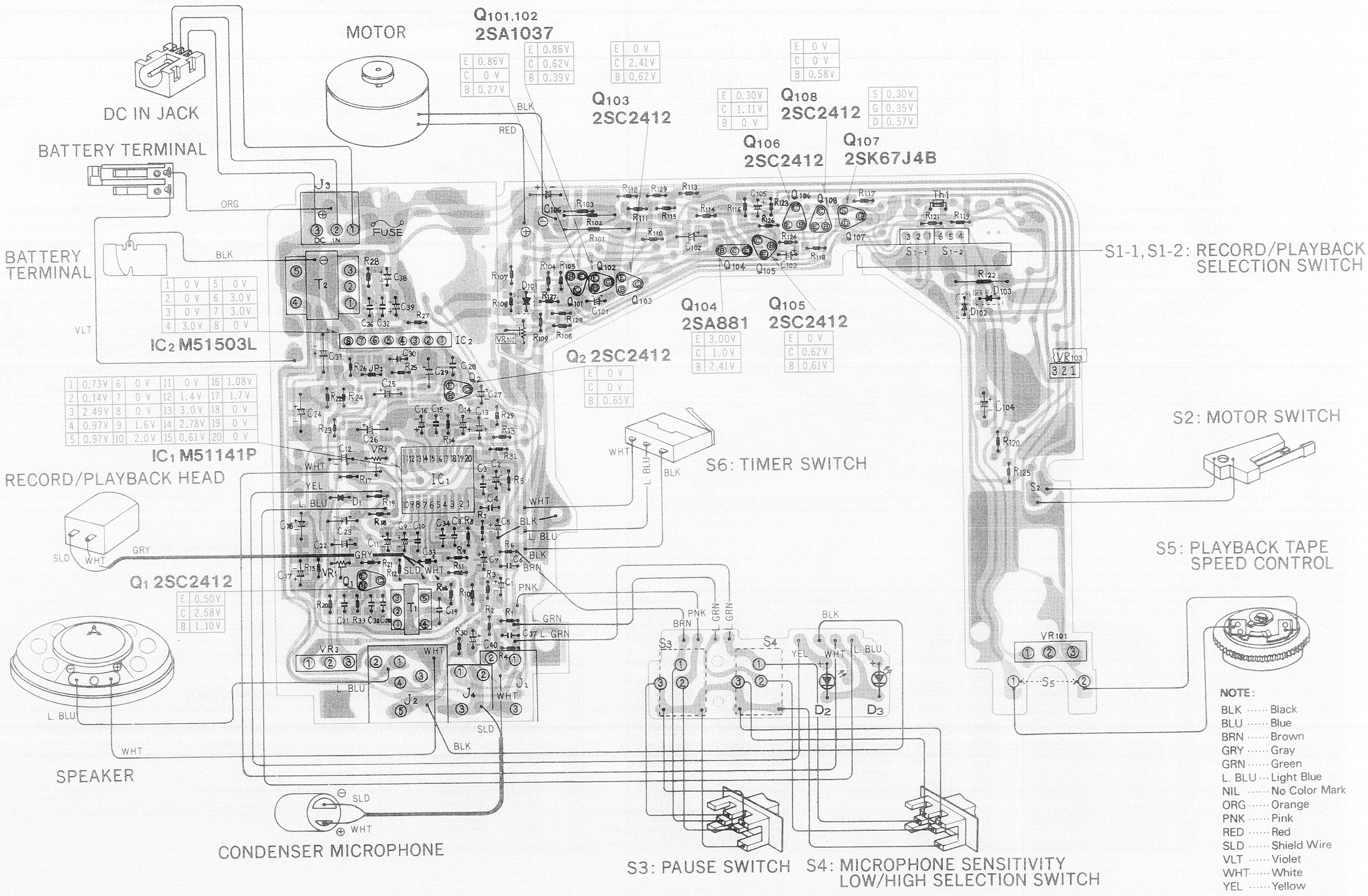
1. S1-1, S1-2 ····· Record/playback switch (shown in playback position).
2. S2 ····· Power ON/OFF switch (shown in ON position).
3. S3 ····· Pause switch (shown in ON position).
4. S4 ····· Mic sensitivity low/high select switch (shown in low position).
5. S5 ····· Playback tape speed control ON/OFF switch (shown in ON position).
6. S6 ····· Timer switch (shown in OFF position).
7. VR1 ····· Bias current adjustment VR.
8. VR2 ····· Battery check indicator adjustment VR.
9. VR3 ····· Volume control.
10. VR101 ····· Playback tape speed control.
11. VR102 ····· Tape speed adjustment VR.
12. VR103 ····· Timer adjustment VR.
13. Resistor values are in ohms (Ω), 1/8 watt unless specified otherwise. K = 1,000Ω.
14. Capacitor values are in microfarads (μF) unless specified otherwise. P = Pico-farads.
15. All voltage values shown in circuitry are under no signal condition with volume control at minimum position. For measurement, use VTVM.

SPECIFICATIONS

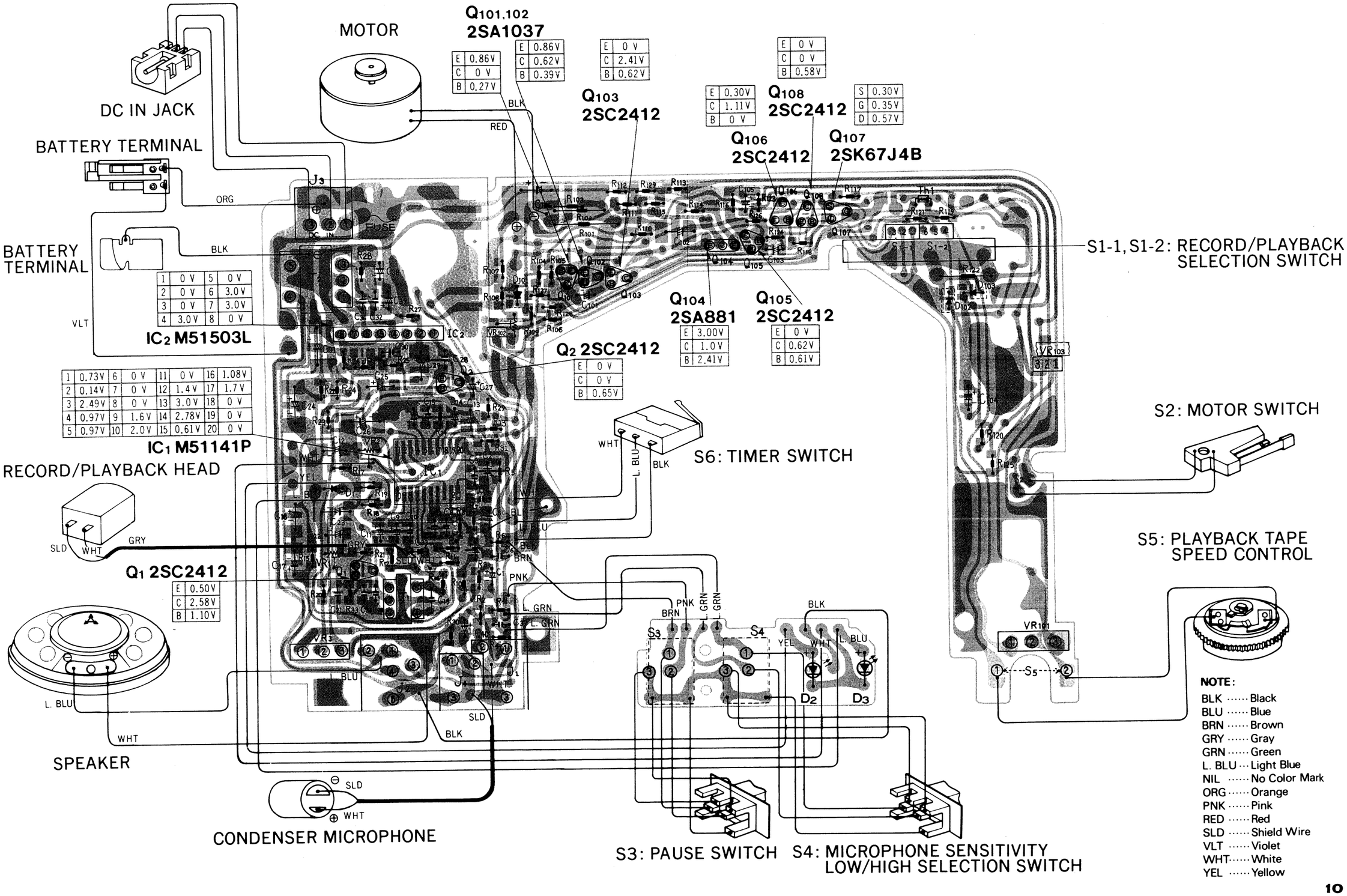
Bias oscillation frequency	35±7kHz
Standard recording input level	MIC: −72dB
Overall frequency response	300Hz: 0±6dB 1kHz: 0dB 6kHz: −2±6dB

Ref. No.	Part No.	Part Name & Description
TRANSFORMERS		
T1	QLB0192	Bias Oscillation Transformer
T2	QLT2D33X	Output Transformer
SWITCHES		
S1	QSS2220T	Slide Switch
S2	QSB0240	Leaf Switch
S3, 4	QSS1101T	Slide Switch
S5	Refer to VR101	Playback Tape Speed Control Switch
S6	QSM0072	Micro Switch

WIRING CONNECTION DIAGRAM



WIRING CONNECTION DIAGRAM



1	0 V	5	0 V				
2	0 V	6	3.0 V				
3	0 V	7	3.0 V				
4	3.0 V	8	0 V				

1	0.73 V	6	0 V	11	0 V	16	1.08 V
2	0.14 V	7	0 V	12	1.4 V	17	1.7 V
3	2.49 V	8	0 V	13	3.0 V	18	0 V
4	0.97 V	9	1.6 V	14	2.78 V	19	0 V
5	0.97 V	10	2.0 V	15	0.61 V	20	0 V

E	0.50 V
C	2.58 V
B	1.10 V

E	0.86 V
C	0.62 V
B	0.39 V

E	0.86 V
C	0 V
B	0.27 V

E	0 V
C	2.41 V
B	0.62 V

E	0.30 V
C	1.11 V
B	0 V

E	0 V
C	0 V
B	0.58 V

S	0.30 V
G	0.35 V
D	0.57 V

E	3.00 V
C	1.0 V
B	2.41 V

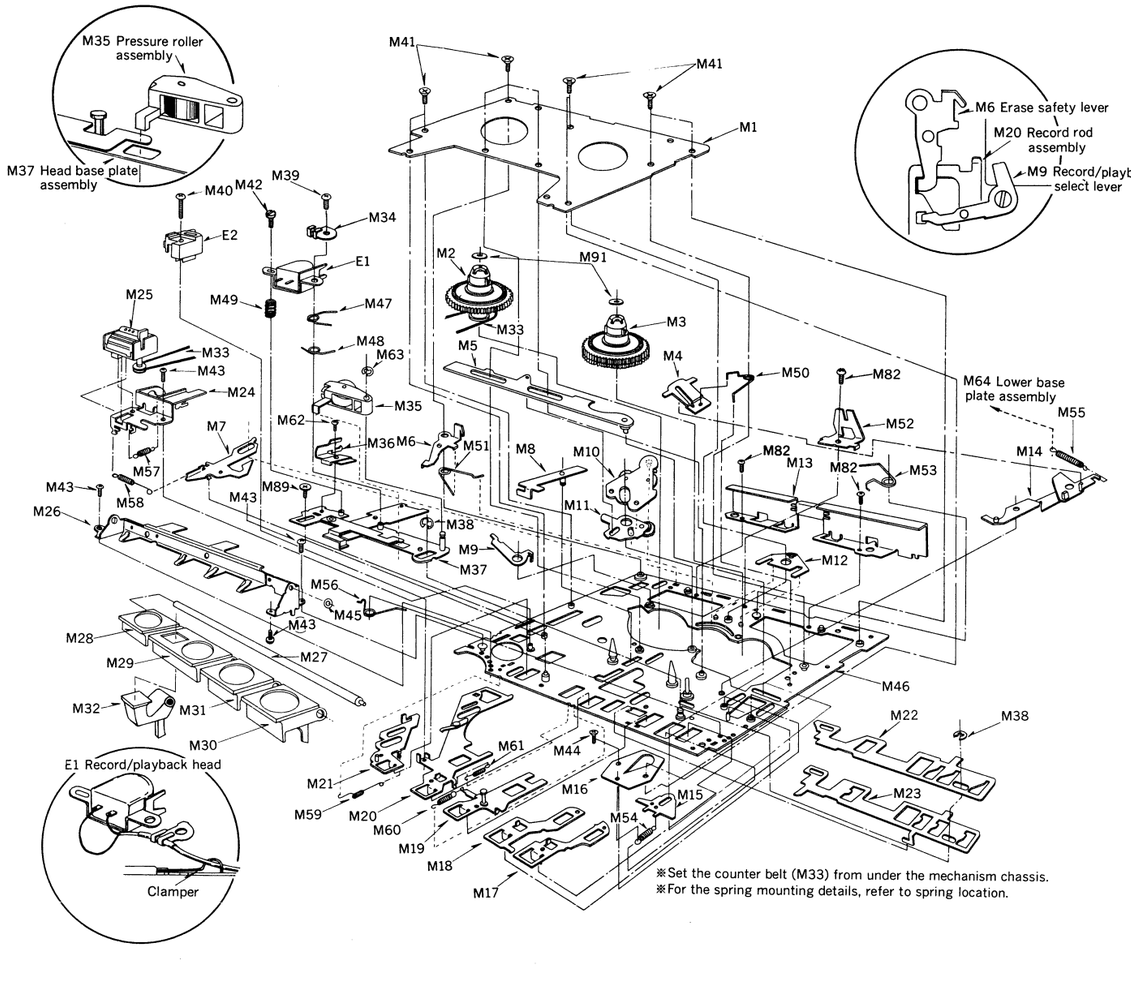
E	0 V
C	0.62 V
B	0.61 V

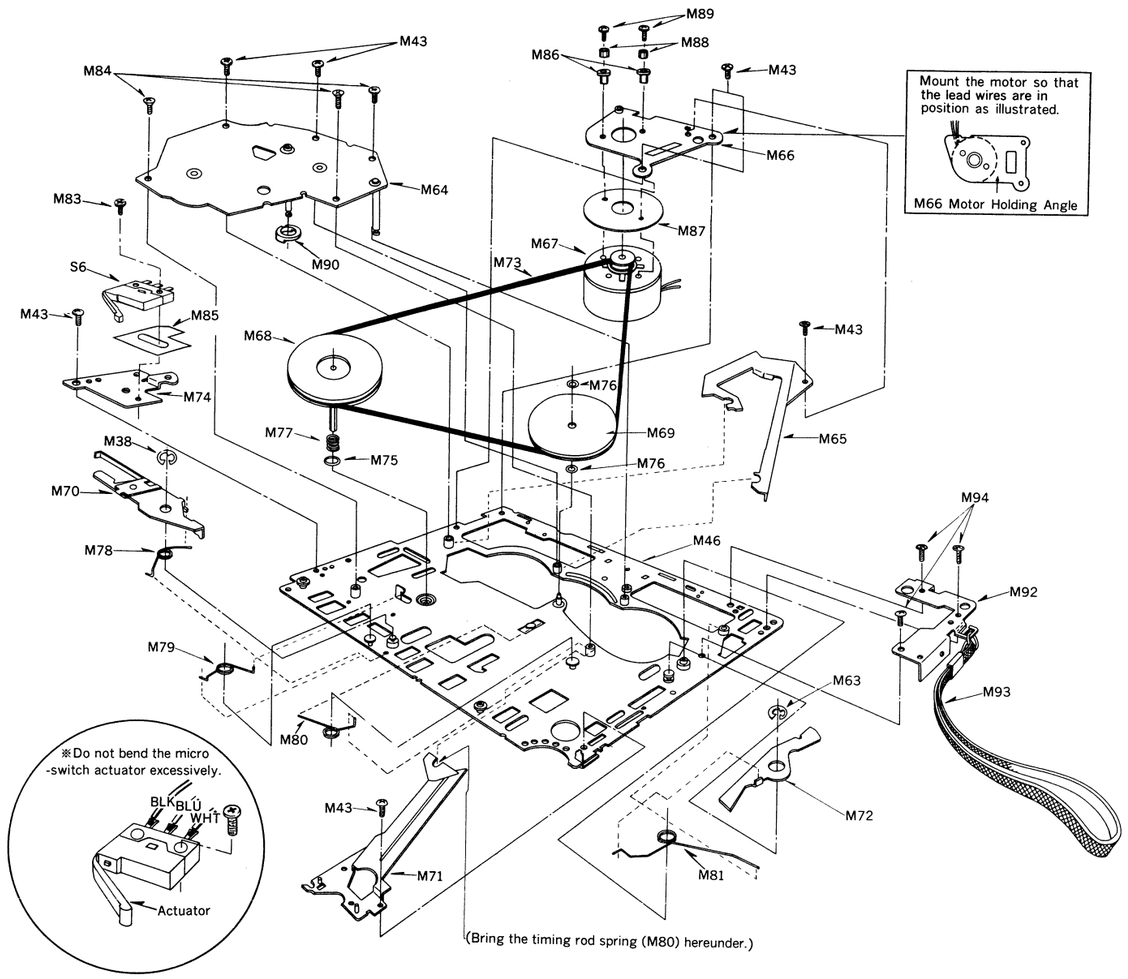
E	0 V
C	0 V
B	0.65 V

NOTE:

BLK ..... Black
BLU ..... Blue
BRN ..... Brown
GRY ..... Gray
GRN ..... Green
L. BLU ... Light Blue
NIL ..... No Color Mark
ORG ..... Orange
PNK ..... Pink
RED ..... Red
SLD ..... Shield Wire
VLT ..... Violet
WHT ..... White
YEL ..... Yellow

EXPLODED VIEWS


M35 Pressure roller assembly
M37 Head base plate assembly
M6 Erase safety lever
M20 Record rod assembly
M9 Record/playback select lever
M64 Lower base plate assembly
E1 Record/playback head
Clamper
※Set the counter belt (M33) from under the mechanism chassis.
※For the spring mounting details, refer to spring location.


Mount the motor so that the lead wires are in position as illustrated.
M66 Motor Holding Angle
※Do not bend the micro -switch actuator excessively.
BLK BLÚ WHT
Actuator
(Bring the timing rod spring (M80) hereunder.)

Ref. No.	Part No.	Part Name & Description
		MECHANICAL PARTS
M1	QMK1795	Chassis Cover
M2	QXD0103	Supply Reel Table Assembly
M3	QXD0102	Takeup Reel Table Assembly
M4	QML3451	Auto-Stop Detection Lever
M5	QXR0471	Control Rod Assembly
M6	QML3447	Erase Safety Lever
M7	QXR0477	Eject Rod Assembly
M8	QXR0472	Timing Rod Assembly
M9	QML3448	Record/Playback Selection Lever
M10	QXL1278	Fast Forward Gear Assembly
M11	QXL1279	Takeup Gear Lever Assembly
M12	QXL1308	Click Lever Assembly
M13	QMG0072	Cassette Holder Plate
M14	QXL1280	Lock Release Lever Assembly
M15	QML3442	Fast Forward Control Lever
M16	QMF2078	Control Lever Lid Plate
M17	QMR1742	Fast Forward Rod
M18	QMR1741	Rewind Rod
M19	QXR0473	Playback Rod Assembly
M20	QXR0494	Record Rod Assembly
M21	QXR0476	Stop Rod Assembly

Ref. No.	Part No.	Part Name & Description
M22	QMR1744	Switch Rod
M23	QMR1743	Lock Rod
M24	QXA0775	Counter Angle Assembly
M25	QDC0113	Tape Counter
M26	QXA0762	Push Button Angle Assembly
M27	QMN2412	Button Shaft
M28	QGO1599	Stop Button
M29	QGO1600	Playback Button
M30	QGO1601	Fast Forward Button
M31	QGO1602	Rewind Button
M32	QGO1561	Record Button
M33	QDB0256	Counter Belt
M34	QTD1274	Head Lead Clamper
M35	QXL1282	Pressure Roller Arm Assembly
M36	QMG0071	Tape Guide
M37	QXK2158	Head Base Plate Assembly
M38	XUC2FT	Stop Ring 2φ
M39	XSN2+4	Screw ⊕2×4
M40	XSN2+10	Screw ⊕2×10
M41	XQS16A16FC	Screw ⊕1.6×1.6
M42	QHQ1294	Head Adjusting Screw
M43	XQN16C3FZ	Screw ⊕1.6×3
M44	XQN16C22FC	Screw ⊕1.6×2.2

Ref. No.	Part No.	Part Name & Description
M45	QBW2008	Nylon Snap Washer 2φ
M46	QXK2155	Upper Base Plate Assembly
M47	QBN1650	Pressure Roller Spring
M48	QBN1651	Playback Spring
M49	QBC1339	Head Spring
M50	QBN1648	Auto-Stop Detection Lever
M51	QBN1647	Erase Safety Lever Spring
M52	QBP1843	Cassette Lid Spring
M53	QBN1698	Click Lever Spring
M54	QBT1864	Fast Forward Control Lever Spring
M55	QBT1874	Lock Release Lever Spring
M56	QBN1696	Switch Rod Spring
M57	QBT1875	Counter Lever Spring
M58	QBT1863	Eject Lever Spring
M59	QBT1862	Stop Rod Spring
M60	QBT1860	Playback Rod Spring
M61	QBT1861	Record Rod Spring
M62	XQN16A16FC	Screw ⊕1.6×1.6
M63	XUC25FT	Stop Ring 2.5φ
M64	QXK2157	Lower Base Plate Assembly
M65	QMG0075	Capstan Belt Cover
M66	QXA0771	Motor Holding Plate Assembly
M67	MKCN25DA3A	DC Motor

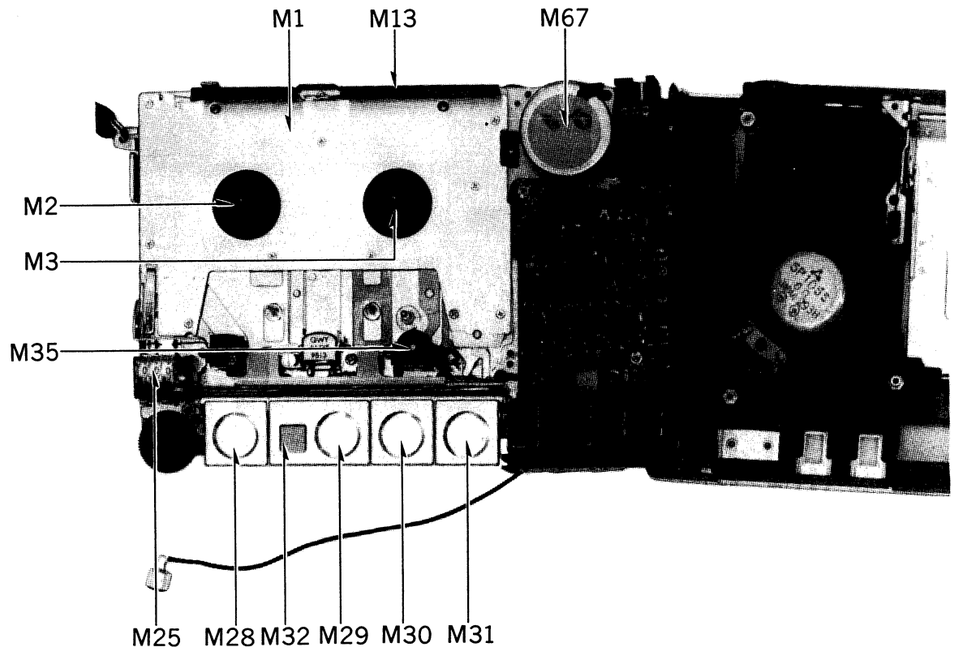
Ref. No.	Part No.	Part Name & Description
M68	QXF0146	Flywheel Assembly
M69	QXG1041	Main Gear Assembly
M70	QXL1309	Cue Lever Assembly
M71	QMG0076	Counter Belt Cover
M72	QXL1307	Brake Arm Assembly
M73	QDB0255	Flywheel Belt
M74	QMA3784	Switch Angle
M75	QBW2059	Washer
M76	QBW2060	〃
M77	QBC1345	Flywheel Spring
M78	QBN1697	Cue Lever Spring
M79	QBN1649	Lock Rod Spring
M80	QBN1654	Timing Rod Spring
M81	QBN1695	Brake Arm Spring
M82	XQN16A22FZ	Screw ⊕1.6×2.2
M83	XQN16C4FZ	Screw ⊕1.6×4
M84	XQS16A22FZ	Screw ⊕1.6×2.2
M85	QTW1169	Insulator Sheet
M86	QBG1658	Motor Cushion
M87	QBG1659	Rubber Sheet-1
M88	QMC0097	Motor Collar
M89	QHQ1293	Screw
M90	QMD0019	Auto-Stop Cam

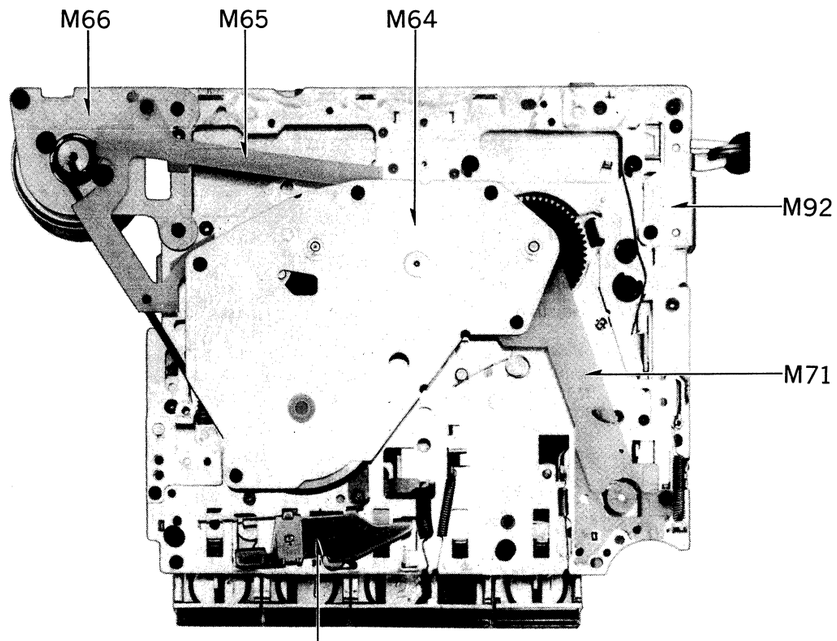
Ref. No.	Part No.	Part Name & Description
M91	QBW2030	Washer 1.5φ
M92	QMA3693	Hand Strap Holder
M93	QYH0085K	Hand Strap
M94	XQN16C22FZ	Screw ⊕1.6×2.2

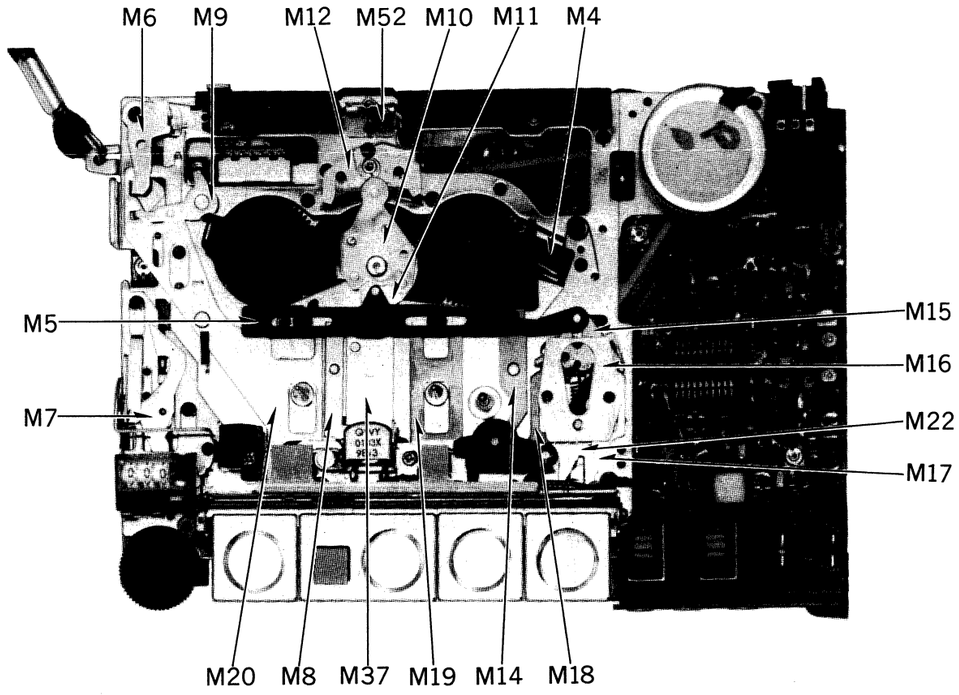
SPECIFICATIONS

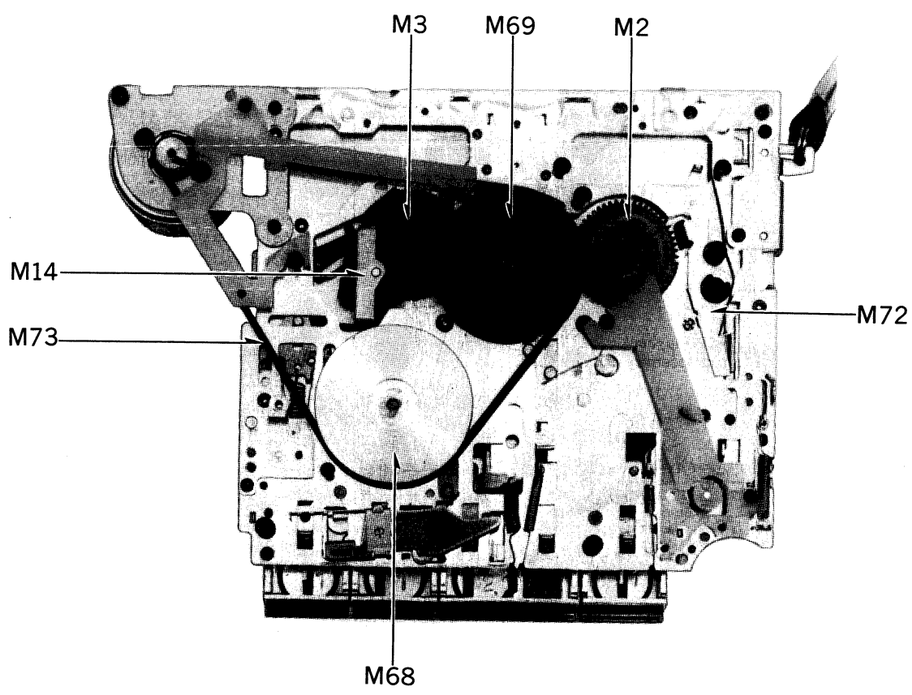
Pressure of pressure roller	250±50gr
Tapeup tension * Use cassette torque meter ……QZZSRKCT	20－42gr-cm
Wow and flutter * Use test tape……QZZCWAT	Less thon 0.45%(RMS)

MECHANICAL PARTS LOCATION



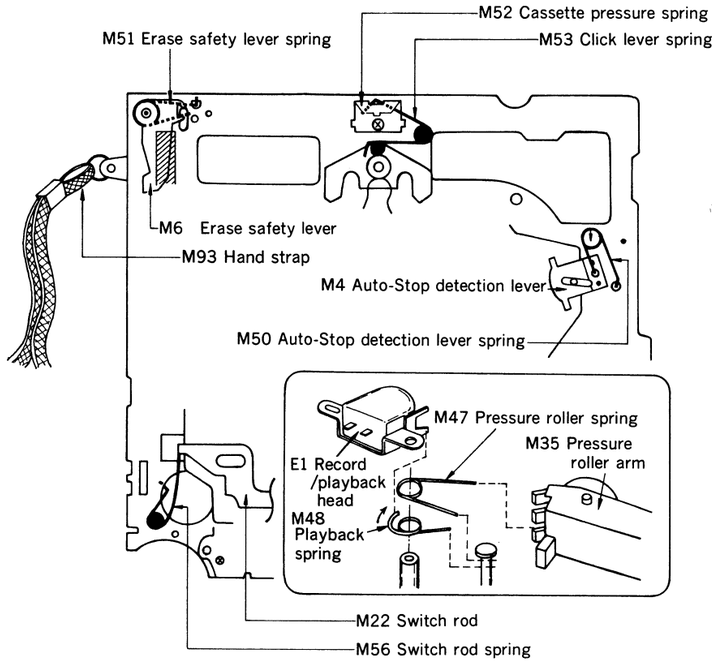




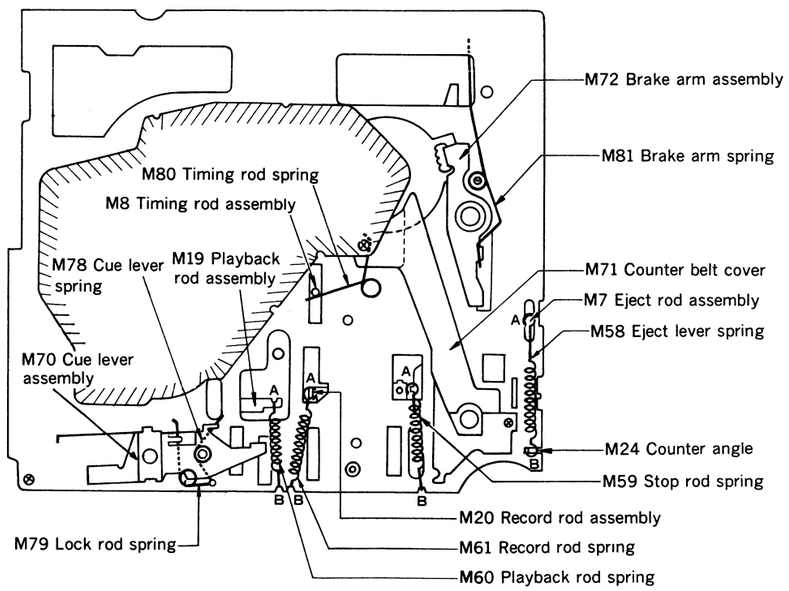


SPRING LOCATION

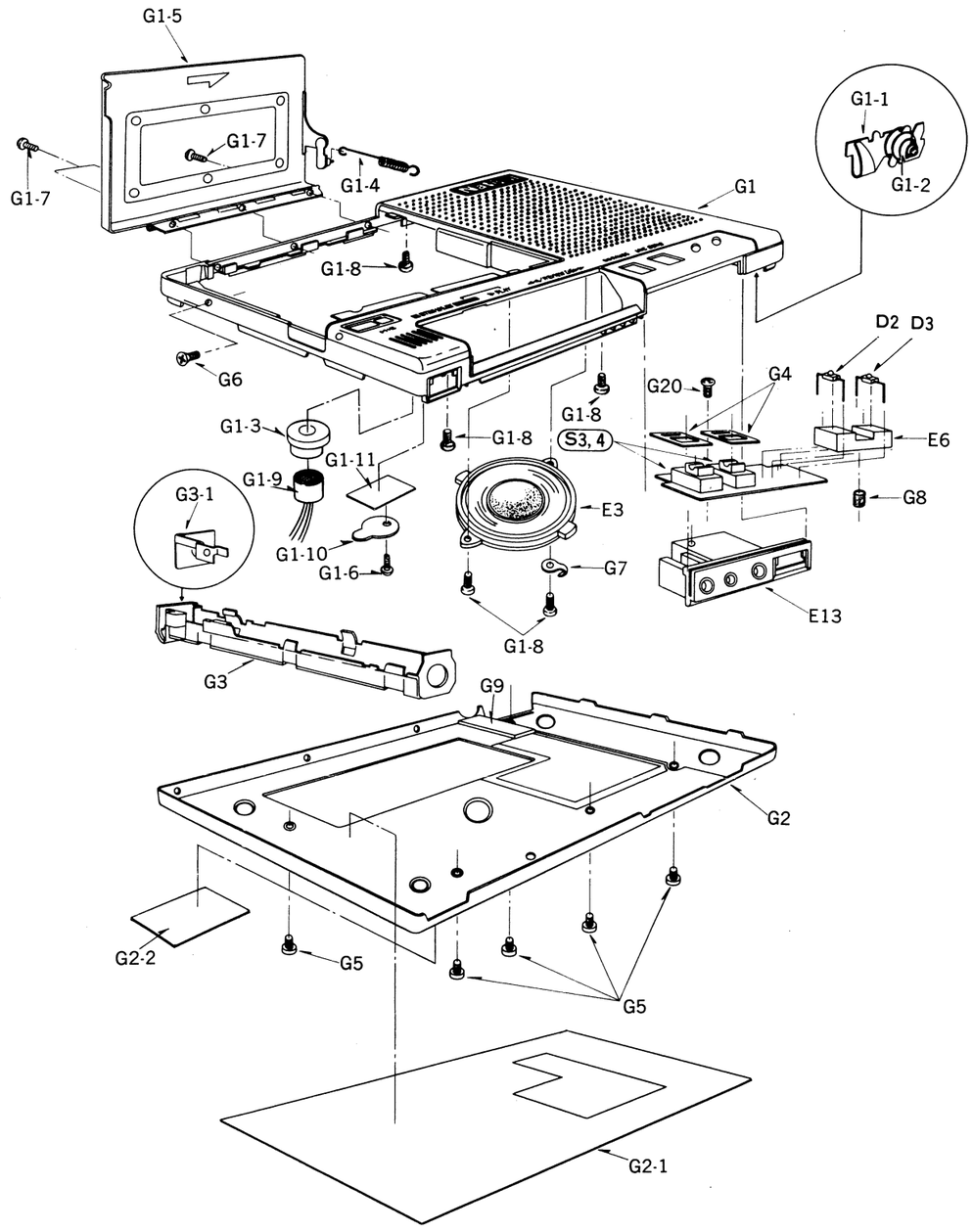
TOP VIEW



BOTTOM VIEW



CABINET PARTS



Ref. No.		Part No.	Part Name & Description
			CABINET PARTS
G1	N	QYM0552	Main Case Assembly
			✻For All European areas except United Kingdom.
	N	QYM0546	〃
			✻For Asia, Latin America, Middle East and Africa areas.
G1-1		QJB0127	Battery Terminal
G1-2		QBN8018	Battery Spring
G1-3		QBG1641	Microphone Rubber
G1-4		QBN7006	Cassette Lid Spring
G1-5	N	QYF0377	Cassette Lid Assembly
			✻For All European areas except United Kingdom.
	N	QYF0378	〃
			✻For Asia, Latin America, Middle East and Africa areas.
G1-6		XQN16C4FZ	Screw ⊕1.6×4
G1-7		XQNQ16C4FC	〃
G1-8		XQN16C3FXR	Screw ⊕1.6×3
G1-9		WM063Y	Built-in Microphone
G1-10		QBP1857	Microphone Pressure Spring
G1-11		QTW1203	Insulator
G2	N	QYK0111	Bottom Case Assembly
			✻For All European areas except United Kingdom.
	N	QYK0109	〃
			✻For Asia, Latin America, Middle East and Africa areas.
G2-1		QTW1163	Insulator Sheet
G2-2		QGS2702	Main Name Plate
G3		QYD1025	Battery Case
G3-1		QJB0126	Battery Terminal (+)
G4		QKJ0340	Switch Cover Board
G5		XQN16A3FC	Screw ⊕1.6×3
G6		XQCQ16C4FZ	Screw ⊕1.6×4
G7		QTD1258	Lug Terminal
G8		QJC0024	Connection Terminal Spring
G9		QKA1079	Rubber Foot
			ACCESSORIES
A1		QFK0150	Carring Case
A2		XEH15A1E	Earphone
A3		QFTC07003NZ	Demonstration Tape
A4	N	QQT2621	Instruction Book
			✻For All European areas except United Kingdom.
	N	QQT2667	〃
			✻For United Kingdom, Asia, Latin America, Middle East and Africa areas.
			PACKINGS
P1	N	QPK1084	Inside Carton
			✻For All European areas except United Kingdom.
	N	QPK1085	〃
			✻For United Kingdom, Asia, Latin America, Middle East and Africa areas.
P2		XZB16X28A02	Poly Bag